

Schrödinger Equation

$$i\hbar \frac{d|\psi\rangle}{dt} = H|\psi\rangle$$

Complex state vector Ψ : $|\Psi_i|^2 = \text{Prob}(\text{measure state } i)$

Hamiltonian matrix H , Hermitian: $H^\dagger = H$

$$|\psi(t_2)\rangle = \exp\left[\frac{-iH(t_2 - t_1)}{\hbar}\right] |\psi(t_1)\rangle = U(t_1, t_2)|\psi(t_1)\rangle$$

$$U(t_1, t_2) \equiv \exp\left[\frac{-iH(t_2 - t_1)}{\hbar}\right]$$

Unitary matrix U : $U^{-1} = U^\dagger$